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REMARKS

Introductory Comments

In the Office Action, the Examiner rejected claims 1-30, 53, and 54 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,122,361 to Gupta (hereinafter "Gupta") in view of U.S. Patent No. 6,122,614 to Kahn et al. (hereinafter "Kahn"). In this Amendment, Applicants have amended independent claims 1 and 53 to further define patentable aspects. Dependent claims 7, 12, and 23 have also been amended, and dependent claim 5 has been cancelled without prejudice. Independent claim 55 has been added. No new matter has been introduced. After entry of these amendments, claims 1-4, 6-30, 53, 54, and 55 will be pending in the application. Applicants respectfully request reconsideration of the presently pending claims based on the amendments to the claims and for the reasons provided below.

Summary of Arguments

After carefully considering the rejections presented by the Examiner in the Office Action, Applicants continue to find patentable subject matter recited in the claims. With respect to independent claims 1 and 53 as amended, as well as independent claims 17, 29, and 30, for example, Applicants find that the Office Action fails to provide evidence sufficient to establish a *prima facie* case of obviousness because Gupta and Kahn, taken alone or in combination, do not teach or suggest each and every claim limitation recited in these claims. In particular, there is no teaching or suggestion in the references of using a transcript as a query into a database or of presenting a telephone number corresponding to an accepted one or more listings to a caller. With respect to independent claim 54, Applicants cannot find any teaching in Gupta or Kahn of connecting a caller to a called party corresponding to a listing, as recited in the claim. Moreover, one of ordinary skill in the art would not have been motivated to combine Gupta and Kahn. In particular, the alleged motivation cited in the Office Action would not have motivated one of ordinary skill in the art to combine the references.

Moreover, Applicants have presented separate arguments herein for the patentability of other claims, including, for example, new independent claim 55 and dependent claims 7, 12, and 23. Claim 7 recites limitations related to identifying at least one word that is required for each listing, determining whether a transcript contains the identified at least one required word, and accepting a listing when the transcript contains the identified at least one required

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word, which features are not taught or suggested in the prior art of record. Claims 12, 23, and 55 recite similar limitations that are not taught or suggested in the prior art of record.

Rejection of Claims 1-30, 53, and 54 under 35 U.S.C. §103(a)

On page 2 of the Office Action, the Examiner rejected claims 1-30, 53, and 54 under 35 U.S.C. §103(a) as being unpatentable over Gupta in view of Kahn. "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. . "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed Cir. 1992)." M.P.E.P. § 2143.01. Thus, a *prima facie* case of obviousness requires: (1) a suggestion or motivation to modify or combine the reference teachings; (2) a reasonable expectation of success; and (3) a teaching or suggestion in the prior art references of all of the claim limitations (MPEP 2143). For at least the reasons discussed below, the Office Action does not satisfy all of these requirements.

A. Independent Claims 1, 17, 29, 30, and 53

Independent claims 1, 17, 29, 30, and 53 each recite claim limitations that are not taught or suggested in Gupta or Kahn. For example, Applicants have amended independent claim 1 to further define patentable aspects, including the claim limitation of:

> ...a listing retrieval module configured to retrieve at least one listing corresponding to the audible request from a database, the listing retrieval module being configured to use the transcript as a query into the database....
> (Emphasis added.)

Independent claim 53 has been amended to include a similar limitation. Independent claims 17, 29, and 30 also recite similar claim limitations related to retrieving a listing by using a transcript of a request as a query into a database. Gupta and Kahn, taken alone or in combination, do not teach or suggest this claim limitation. On page 3 of the Office Action, the Examiner correctly admits that Gupta does not teach "generating a transcript." The Examiner then asserts that Kahn "teaches the operator generating transcripts of the user input" (page 3 of the Office Action). Even if this assertion is assumed to be true for the sake

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of argument, however, the combination of Gupta and Kahn still fails to teach or suggest the claim limitation of retrieving a listing by using a transcript of a request as a query into a database.

As disclosed in Applicants' specification, the use of transcripts of audible requests as queries into a database of listings allows Applicants' directory assistance systems and methods to facilitate automated directory assistance for large numbers of listings by using large vocabulary recognition techniques for both recognition and verification of requested listings (see, e.g., page 18, line 1 to page 19, line 17 and page 26, lines 2-4 of Applicants' specification). Moreover, the use of transcripts provides flexibility by permitting automated directory assistance even when a caller's request is phrased in a slightly novel way (see, e.g., page 26, lines 5-6 of Applicants' specification).

Kahn fails to teach or suggest the claim limitation of retrieving a listing by using a transcript of a request as a query into a database. Kahn is directed to an attempt to automate transcription services by moving acoustic model training tasks normally performed by end users of speech recognition software from the end users to human operators and speech recognition programs that create written text from voice dictation (Title; Abstract; and col. 2, lines 8-25 of Kahn). After careful review of Kahn, however, Applicants cannot find any teaching or suggestion of using transcripts of requests as queries into a database to retrieve listings. Any transcript generated in Kahn is merely returned to the end user of the speech recognition software program (Abstract of Kahn). The teachings of Kahn are limited to transcription services and do not contain any teaching or suggestion of an application in which a generated transcript is used as a query into a database to retrieve a listing. Thus, Kahn fails to teach or suggest this claim limitation.

Gupta also fails to teach or suggest the claim limitation of retrieving a listing by using a transcript of a request as a query into a database. Although Gupta discloses searching a speech recognition dictionary containing locality listings to identify matches for audible requests for a locality (Abstract of Gupta), Gupta is limited to finding the matches using audible speech recognition techniques and does not contain any teaching or disclosure of using a transcript of a request to search the speech recognition dictionary. In contrast to the use of transcripts to search a database, Gupta discloses a conversion of a spoken utterance into an electrical signal for transmission from a telephone to a speech recognition unit (Gupta, col. 6, lines 35-37). The electrical signal is segmented, normalized, and parameterized (Gupta, col. 6, lines 40-43). A search is then performed to find possible matches of the audible request in a speech recognition dictionary (col. 6, lines 45-50).

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However, the electrical signal disclosed in this section of Gupta is an electrical <u>audio signal</u> representative of the audible request, as evidenced by the description at col. 6, line 51 to col. 7, line 17 of Gupta, which discusses how short segments (i.e., frames having duration ranges from 5-20 milliseconds) of the signal are processed at the pre-processing unit 102. Moreover, Gupta repeatedly discloses that the speech recognition is performed using acoustical characteristics and speech processing to find a match (e.g., see Gupta, col. 2, lines 28-32; col. 2, lines 45-49; and col. 7, lines 21-22). Thus, the system of Gupta is equipped only to use audio signals to search a speech recognition dictionary, and Gupta does not contain any teaching of using <u>a transcript of a request as a query into a database</u> to retrieve a listing, as recited in claims 1, 17, 29, 30, and 53.

On page 2 of the Office Action, the Examiner continues to rely upon blocks 404-406 of Figure 3 of Gupta to reject the claim limitation of retrieving a listing from a database using a transcript. However, neither blocks 404-406 nor the corresponding description contain any disclosure of <u>using a transcript of a request</u> to retrieve a listing. In contrast, block 404 of Gupta discloses a step for obtaining data for a called number, and block 406 of Gupta discloses a step for determining whether the called number is any one of a specific plurality of different telephone numbers that can be dialed to access Gupta's directory service system (Gupta, Figure 3 and col. 11, lines 17-26). If one of the specific telephone numbers for the directory service has been dialed, then the system of Gupta uses predefined locality probability tables to recognize and prioritize localities that might be associated with an audible request (Gupta, steps 408-418 of Figure 3). In this manner, the system of Gupta is able to use an area code and/or a prefix associated with a telephone number to assist in identifying localities requested by callers. However, the area codes and prefixes are not transcripts of requests. Moreover, the area codes and prefixes are used merely to prioritize localities by probabilities based on calling patterns. The localities are still identified using audio signals to search speech recognition dictionary of localities, as discussed above. Therefore, Gupta does not contain any teaching of using a transcript of a request as a query into a database to retrieve a listing, as recited in claims 1, 17, 29, 30, and 53.

Because neither Gupta nor Kahn teach or suggest the claim limitation of retrieving a listing by using a transcript of a request as a query into a database, the combination of Gupta and Kahn also fails to teach or suggest this claim limitation. The asserted combination of the references may be able to convert audible requests for localities to transcript form using the teachings of Kahn, but there is not any teaching or suggestion in Gupta or Kahn of using the generated transcripts as queries into a database. As discussed above, Kahn fails to teach or

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suggest any such application of generated transcripts, and the teachings of Gupta are limited to using <u>audio signals</u> to search a speech recognition dictionary of localities. Therefore, the prior art of record does not teach or suggest the claim limitation of retrieving a listing by using a transcript of a request as a query into a database, as recited in independent claims 1, 17, 29, 30, and 53.

Gupta and Kahn, taken alone or in combination, also fail to teach or suggest another claim limitation recited in independent claims 1, 17, 29, 30, and 53, namely the claim limitation of <u>presenting a telephone number corresponding to the listing to a caller</u>. On page 2 of the Office Action, the Examiner continues to rely upon blocks 416 and 418 of Figure 3 of Gupta to reject this claim limitation. Although the Examiner continues to rely upon the same reasoning as presented in the previous Office action dated December 7, 2004 to reject this claim limitation, the current Office Action does not address the relevant arguments presented in Applicants' previous response filed on March 4, 2005. MPEP 707.07(f) states that "[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it."

Neither block 416 nor 418 of Figure 3 of Gupta discloses the presenting of a telephone number corresponding to a listing to a caller. In contrast, step 416 of Gupta discloses only a re-ordering of a list of localities based on a locality-based, calculated compound probability. At step 418 of Gupta, the top three candidates of the list are selected. The re-ordering and selecting of list entries at steps 416-418 do not in any way amount to the presenting of a telephone number corresponding to a listing to a caller. Gupta does not disclose this claim limitation because the system of Gupta is limited to a speech recognition technique that uses localities and probabilities to enhance the accuracy of matching localities requested in a directory service system.

Kahn is relied upon merely for the generation of a transcript and, as such, does not cure this deficiency of Gupta. The teachings of Kahn are limited to automating training tasks for speech recognition software and do not contain any teaching or suggestion of presenting a telephone number corresponding to a listing to a caller.

In addition, one of ordinary skill in the art would not have been motivated to combine Gupta and Kahn. On page 3 of the Office Action, the Examiner asserts that the combination of Gupta and Kahn would have been obvious because the combination "would advantageously allow for editing of unmatched speech," as disclosed at col. 2, lines 50-60 of Kahn. However, Gupta is not concerned with the editing of unmatched speech. If a request for a locality is unclear (e.g., unmatched), the system of Gupta simply passes the request to a

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human operator (col. 9, lines 2-3 of Gupta), at which point the human operator attempts to find a match for the request. Thus, the editing of unmatched speech disclosed in Kahn would not have motivated one of ordinary skill in the art to combine Gupta and Kahn as asserted by the Examiner.

For any of the foregoing reasons, the Office Action fails to establish a prima facie case of obviousness against independent claims 1, 17, 29, 30, and 53 because Gupta and Kahn, taken alone or in combination, do not teach or suggest each and every claim limitation recited in these claims. Therefore, Applicants respectfully request that the Examiner withdraw the rejections of independent claims 1, 17, 29, 30, and 53, which are in condition for allowance. Claims 2-4, 6-16, and 18-28 are in condition for allowance by way of their respective dependencies from either claim 1 or 17.

B.   Independent Claim 54

On page 3 of the Office Action, the Examiner rejected independent claim 54 for the same reasons used to reject independent claims 1, 17, 29, 30, and 53, as discussed above. However, independent claim 54 recites claim limitations not contained in independent claims 1, 17, 29, and 30. Unfortunately, the Office Action fails to consider these differences and does not address the relevant arguments presented in Applicants' previous response filed March 4, 2005. For example, independent claim 54 recites the claim limitation of connecting the caller to a called party corresponding to an identified listing. Gupta and Kahn, taken alone or in combination, fail to teach or suggest this claim limitation. Gupta does not disclose this claim limitation because the system of Gupta is limited to a speech recognition technique that uses localities and probabilities to enhance the accuracy of a directory service system. Gupta does not disclose a directory service system capable of connecting the caller to a called party corresponding to an identified listing. Kahn is relied upon merely for the generation of a transcript and, as such, does not cure this deficiency of Gupta. The teachings of Kahn are limited to automating training tasks for speech recognition software and do not contain any teaching or suggestion of connecting the caller to a called party corresponding to an identified listing. Therefore, the Office Action fails to establish a *prima facie* case of obviousness against independent claim 54, and Applicants respectfully request that the Examiner withdraw the rejection of this claim.

C.   Dependent Claims Recite Patentable Subject Matter

As mentioned above, dependent claims 2-4, 6-16, and 18-28 are in condition for allowance as claims depending directly or indirectly from independent claim 1 or 17.

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Nevertheless, the dependent claims also recite independently patentable subject matter not taught or suggested in the prior art of record. Merely by way of example, claims 7, 12, and 23, as amended, recite claim limitations related to determining whether to accept a listing that has been identified as a potential match to a request. The determination is made by ascertaining whether the request includes at least one word that is defined as being required in a request for the listing. Claim 7, as amended, recites:

> 7. The system of claim 1, wherein the accept/reject module is configured to identify at least one word that is required for each of the listings, determine whether the transcript contains the identified at least one required word, and accept one of the listings when the transcript contains the identified at least one required word.

Claim 12, as amended, recites:

> 12. The system of claim 9, wherein the training system includes:
> a required words determination module configured to identify at least one word that is required to request a particular telephone number, the accept/reject module using the identified at least one required word to determine whether a corresponding one of the listings is acceptable.

Claim 23, as amended, recites:

> 23. The method of claim 17, wherein the determining includes:
> identifying at least one word that is required for each of the retrieved listings,
> determining whether the transcript contains the identified at least one required word, and
> accepting one of the retrieved listings when the transcript contains the identified at least one required word.

Gupta and Kahn, taken alone or in combination, do not teach or suggest the above claims limitations related to determining whether a request includes a required word and accepting a listing identified as a potential match to the request when it is determined that the request includes the required word, especially when these claim limitations are considered in the context of the entire claim, the relevant base claim, and any intervening claims. With this feature, Applicants' systems and methods are capable of identifying listings that are potential matches to a request and then accepting or rejecting each of the identified listings by determining whether the request includes at least one word that has been defined as being required for the corresponding listing. In other words, an initial set of "potential-match" listings can be filtered by using one or more defined required words as filter criteria.

Gupta does not teach or suggest these claim limitations. Rather, Gupta uses multiple search stages that are based on different and unrelated criteria to identify localities that match

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a request. The first search stage of Gupta performs rough probabilistic calculations to extract from a speech recognition dictionary a list of possible candidates for a request (col. 7, lines 34-37 of Gupta). The second search stage of Gupta uses a complex matching algorithm to rank the list of possible candidates (col. 7, lines 46-58 of Gupta). The third and final search stage disclosed in Gupta compares the top two ranked candidates against a predefined numeric threshold to determine whether one of the candidates is a possible correct mapping (col. 7, line 59 through col. 8, line 4 of Gupta). Not one of these search stages uses required words as criteria for filtering an initial set of "potential-match" listings, as recited in claims 7, 12, and 23. Ranking a list of candidates and accepting or rejecting top-ranked candidates based on a numeric threshold is completely different from the claim limitations directed to identifying a listing as a potential match to a request, determining whether the request includes a word defined as being required for the listing, and accepting the listing when the request is determined to include the required word, as recited in claims 7, 12, and 23. Therefore, Gupta does not teach or suggest these claim limitations. Kahn was cited merely for a disclosure of generating a transcript from a voice recording and, as such, does not cure this deficiency of Gupta. Consequently, Gupta and Kahn, taken alone or in combination, do not teach or suggest each and every claim limitation recited in claims 7, 12, and 23, and the Office Action fails to establish a *prima facie* case of obviousness against these claims. Accordingly, Applicants respectfully request that the Examiner withdraw the rejections of claims 7, 12, and 23, which are in condition for allowance.

New Independent Claim 55

Independent claim 55 recites subject matter not taught or suggested in the prior art of record. Independent claim 55 recites:

> 55. A method of providing directory assistance, comprising:
> defining a set of words or phrases associated with a listing;
> defining at least one required word associated with the listing;
> receiving a request for a telephone number from a caller;
> using speech recognition to generate a transcript from the audible request;
> using the transcript to identify the listing as a potential match to the request, the listing being identified by using the transcript as a query into a database containing the set of words or phrases associated with the listing;
> determining whether the transcript includes the at least one required word associated with the listing;
> accepting the listing when it is determined that the transcript includes a match for at least one of the at least one required word; and

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rejecting the listing when it is determined that the transcript does not include a match for at least one of the at least one required word.

The prior art of record does not teach or suggest any of the above-listed claim limitations related to defining a required word, using a transcript of a request to identify a listing as a potential match to the request, and using the required word to determine whether to accept or reject the identified listing. As discussed above in relation to dependent claims 7, 12, and 23, Gupta and Kahn, taken alone or in combination, do not include any teaching of using a required-word criterion to determine whether to accept a "potential-match" listing. Therefore, Applicants respectfully submit that new independent claim 55 is in condition for allowance.

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CONCLUSION

All rejections have been addressed. In view of the above, the presently pending claims are believed to be in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. It is believed that any fees associated with the filing of this paper are identified in an accompanying transmittal. However, if any additional fees are required, they may be charged to Deposit Account 07-2347. To the extent necessary, a petition for extension of time under 37 C.F.R. 1.136(a) is hereby made, the fee for which should be charged against the aforementioned account.

Respectfully submitted,

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